

REMARKS

Claims 1-13 are pending in the present application. Of these claims, all stand rejected. Applicants traverse the rejections and request reconsideration in light of the following remarks.

Claims 9-13 were rejected under 35 U.S.C. § 102(b) as being anticipated by Jouppi et al. (U.S. Patent No. 6,204,859). Applicant traverses this rejection based on the following reasons.

With respect to claim 9, the Office Action asserts that Jouppi discloses all of the claimed elements including "determining an appearance value for the pixel based on the stored fragment data, wherein at least one of the stored fragment data is dropped when the number of fragment data per pixel exceeds a threshold value." In rejecting this element, the Office Action asserts, in particular, that Fig. 5C of Jouppi illustrates a stored fragment data 310 being dropped when the number of fragment data per pixel exceeds a threshold value of $N = 2$. The teachings of Jouppi, however, do not actually disclose or suggest determining an appearance value per pixel based on stored fragment data, wherein at least one of the stored fragment data is dropped. Rather, Jouppi specifically teaches that rather than storing all fragment triples in the pixel memory 314, only two fragment triples 310, 312 are ever stored in memory 314. (See col. 7, lines 3-7). Thus, when a third visible fragment 400 appears, the associated fragment triple 410 is different from the pair of stored fragment triples 310, 312. (Col. 7, lines 37-41). The example of Fig. 5C of Jouppi thus merely teaches a way to deal with the third visible fragment 400, by essentially swapping the new fragment triple 410 for previously stored fragment triple 310. (See col. 9, lines 31-34). Although the data of the stored fragment triple 310, is in essence, discarded, nonetheless only a pair of fragment triples, whether the triple 310, 312 or the triples 410, 312 is essential for determining an appearance value for the pixel based on data stored in the pixel memory 314. Thus, Jouppi does not actually teach and, actually teaches away from, determining an appearance value for pixel where at least one of stored fragment data is actually dropped. Accordingly, Applicants respectfully submit that Jouppi does not teach or suggest all of the elements of claim 9 and the rejection of this claim should be withdrawn.

With respect to dependent claims 10-13, Applicants respectfully submit that these claims are believed to be allowable on their merits and also at least due to their dependency on independent claim 9.

Claims 1, 2, 5, and 8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen et al. (U.S. Patent Publication No. 2003/0030642) in view of Everitt et al. (U.S. Published Patent No. 2004/0169651). Applicants respectfully traverse this rejection for the following reasons.

With respect to independent claim 1, the Office Action asserts that Chen discloses all of the elements of the claim except for dropping the fragment data having the least effect on pixel appearance. Everitt is then alleged to disclose this feature and it is further alleged that it would have been obvious to use a depth bounds test of Everitt's in a graphics processor of Chen to reduce the amount of time spent rendering shadow volumes and decreasing the memory bandwidth consumed by writing to a stencil buffer. Applicants respectfully disagree.

Claim 1 features "a pixel appearance determination circuit, coupled to the rasterizer, operative to determine a pixel appearance value based on the fragment data by dropping the fragment data having the least effect on pixel appearance." The Office Action asserts that the logic core 50 disclosed by Chen is equivalent to this claimed feature.

The cited section of Everitt, which is alleged to teach the element missing from Chen, further does not teach the claimed subject matter of claim 1. In particular, paragraphs 32 and 35 on page 4 of Everitt are asserted as teaching the element of "determin[ing] a pixel appearance value based on the fragment data by dropping the fragment data by having the least effect on pixel appearance." Paragraph 32, however, actually teaches discarding portions of a fragment 403 that fall outside of the window or screen display area, which are irrelevant to determination of pixel appearance values since they are simply not part of a current image to be rendered. Additionally, the disclosure in paragraph 35 of Everitt merely teaches discarding a pixel or pixels in a fragment dependent on if a retrieved depth value (or values) is outside depth bounds. In contrast, the claimed feature is not discarding pixels but instead discards fragment data that would have the least effect on pixel appearance of a pixel that is to be rendered. Accordingly, the Applicants submit that Everitt does not teach or suggest the actual claimed features of claim 1. Accordingly, Applicants respectfully request withdrawal of this rejection.

With respect to claims 2, 5, and 8, these claims are believed to be allowable on their merits and also due to their dependency on independent claim 1, discussed above.

Claims 3, 6, and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of Everitt as applied to claim 1 and further in view of Jouppi et al. Applicants respectfully traverse this rejection for the following reasons.

With respect to Claims 3 and 7, Applicants submit that these claims are believed to be allowable on their merits and also due to their dependency on independent claim 1, discussed above.

With respect to claim 6, this claim is also believed to be allowable on its merits and also due to its dependency on independent claim 1. Additionally, Applicants note that the cited teaching of Jouppi (i.e., col. 15, lines 28-33) does not teach the claimed element of "assigning the fragment data to be dropped with a no color designation." Rather, this section merely discloses that if a new fragment has an alpha value of zero such that it is completely transparent, the graphics accelerator 108 does not store the fragment value. This is clearly different in that no active STEP of "assigning the fragment data to be dropped with a no color designation" is performed as the alpha value is merely an extant property of the fragment in Jouppi. Accordingly, Jouppi does not teach or suggest the elements of claim 6.

Claim 4 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of Everitt as applied to claim 1 and further in view of Duluk, Jr., (U.S. Patent No. 6,476,807). Applicants respectfully traverse this rejection and submit that this claim is believed to be allowable on its merits and also due to its dependency on independent claim 1.

In light of the foregoing comments, Applicants respectfully submit that the application is in condition for allowance and request that the timely Notice of Allowance be issued in this case.

Respectfully submitted,

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